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Tree Pest Leaflets
CANKERWORMS

Alsophila pometaria (Harris), *Paleacrita vernata* (Peck) and *Rachela bruceata* (Hulst).

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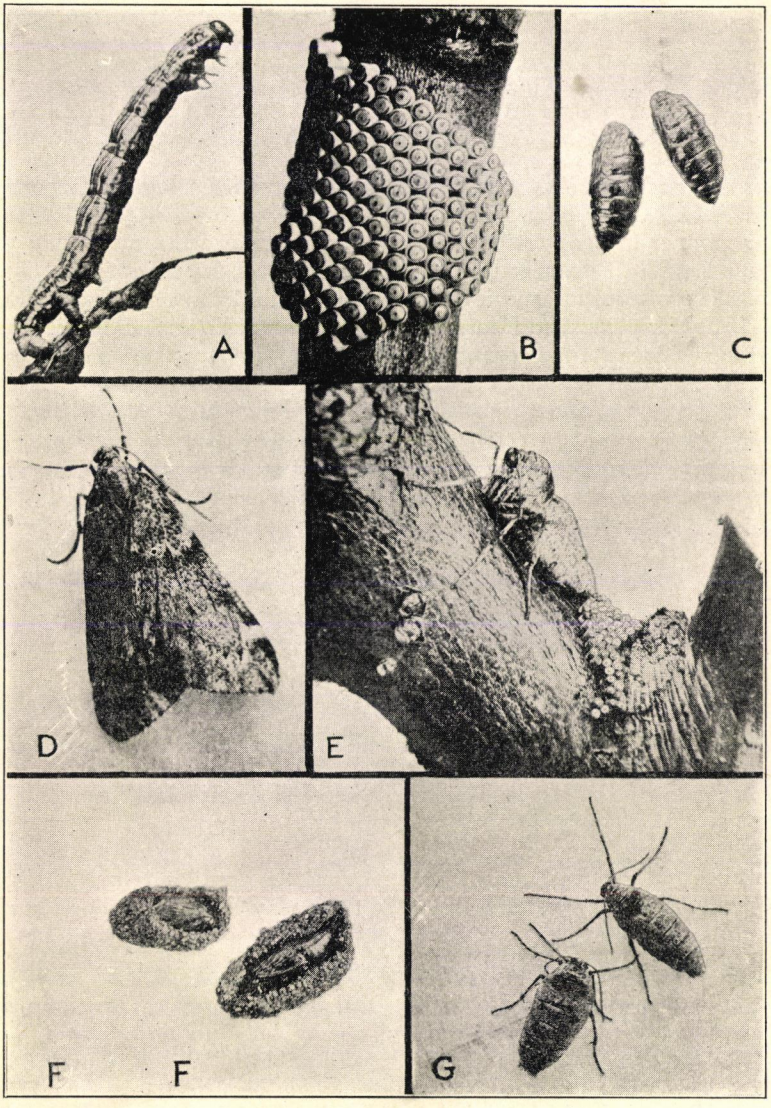

Fall Cankerworm (from U. S. Dept. Agr. Dept. Bul. 1238) — A, Full-grown larva (X 2½); B, egg mass (X 7); C. pupae (X 2¼); D. male moth (X 3; E. female moth laying eggs (X 3; F, pupae in cocoons (X1¾); G, female moths (X 2¼).

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CANKERWORMS

Alsophila pometaria (Harris), *Paleacrita vernata* (Peck) and *Rachela bruceata* (Hulst).

History and Distribution:—Cankerworms have been known as pests since colonial days. Other names commonly given these insects, referring to their peculiar manner of progression, are spanworms, inchworms, measuring worms, and loopers. When disturbed, many of these worms drop suspended on silken threads. The caterpillar species considered in this leaflet are the fall cankerworm, *Alsophila pometaria* (Harris), the spring cankerworm, *Paleacrita vernata* (Peck) and Bruce's spanworm, *Rachela bruceata* (Hulst). While they are distinct species, they are quite similar in appearance and habits. The fall and spring cankerworms occur throughout the northeastern section of the United States and along the southern border of Canada, as well as in many of the Midwestern and Western States. Bruce's spanworm is not so important as the fall and spring cankerworms because it occurs less frequently in injurious numbers. It has been reported as being injurious in Vermont, western New York, and British Columbia.

Host Trees:—The fall and spring cankerworms feed as larvae, or caterpillars, on the leaves of a great variety of deciduous forest, shade, and fruit trees. They seem to prefer elm and apple but species of such common trees as hickory, walnut, oak, cherry, ash, birch, willow, and linden have been recorded as food plants. Peach, pear, plum, quince, and rose are also attacked. Bruce's spanworm is known especially as a pest of aspen, poplar, sugar maple. and apple.

Symptoms of Damage:—The newly hatched caterpillars feed on the unfolding leaves and buds, in which they gnaw small pits. As the caterpillars become larger they may consume all of the leaf tissue except the midribs and larger veins. If the worms are not numerous the feeding is not likely to be noticed, but when they are abundant the trees may be entirely defoliated.

THE FALL CANKERWORM

Description:—Caterpillars of the fall cankerworm measure approximately three-fourths inch when full grown. They vary in color and may be pale green, dark gray, brown, or nearly black, with pale whitish lines running lengthwise of the body. There are three pairs of true legs on the underside of the body just back of the head and three pairs of prolegs, one pair of which is rudimentary, near the hind end, making a total of six pairs.

The moths are brownish gray. The males have a wing expanse of about an inch. The females are wingless.

The minute eggs resemble a brownish-gray flowerpot in color and shape. The female moth places them in a compact single layer, averaging about 100 eggs, on the bark of twigs and branches.

The pupae, or chrysalids, are about one-third inch in length, brown, and occur in tough silk-lined cells or cocoons near the surface of the soil.

Life History:—The caterpillars hatch from the eggs in the spring and become full grown in 30 or 40 days. They then enter the soil and transform to pupae, from which the moths begin to emerge late in the fall. They continue to appear at intervals throughout the winter and early in the spring in some sections. The female moths usually crawl up the trees and lay their eggs a few days after they emerge.

THE SPRING CANKERWORM

Description:—The caterpillars of the spring cankerworm are like those of the fall cankerworm but only have two pairs of prolegs near the hind end, making with the true legs, a total of five pairs.

The moths resemble those of the fall cankerworm but have two rows of minute reddish spines on each segment of the abdomen.

The eggs are oval shape and have the appearance of dull pearls. They are laid in irregular clusters averaging about 50 eggs each, in crevices in the bark.

Elm and Oak trees defoliated by canker-worms, June 1935 (original)

The pupae are of the same size as those of the fall cankerworm but are of a somewhat lighter brown and are found in the soil in simple earthen cells.

Life History:—The life history of the spring cankerworm is much the same as that of the fall cankerworm except that the moths of the spring cankerworm emerge for the most part early in the spring.

BRUCE'S SPANWORM

Description:—The full-grown caterpillars of Bruce's spanworm are about three-fourths inch in length and of a general apple-green color with three narrow yellowish-white stripes along each side of the body. There are five pairs of legs, as on the caterpillar of the spring cankerworm.

The male moths have a wing expanse of about 1⅛ inches and are of a general very pale brownish color. The wingless female moths are light brownish gray.

The eggs are reddish orange, oval, and usually laid singly in crevices of bark scales on the trunks and larger branches of trees.

The light-brown pupa is formed in a slight silk-lined cocoon a short distance below the surface of the soil.

Life History:—The caterpillars issue from the eggs in the spring and get through their destructive work a little earlier than those of the fall cankerworm and spring cankerworm. They have a special fondness for blossom buds. The moths emerge and lay their eggs in the fall.

CONTROL

Natural Enemies

An outstanding feature of cankerworm outbreaks is the recurrence of extremes of abundance and scarcity. Various factors have been reported to be responsible for their disappearance, and it is logical to presume that one or more of these factors bring about this condition. Among these are cold; stormy weather immediately after the caterpillars have hatched; enemies in the form of insects, spiders, birds, and disease; and starvation in areas where caterpillars are exceptionally abundant.

ARTIFICIAL CONTROL

Spraying:—Spraying with lead arsenate, at the rate of 3 pounds to 100 gallons of water, with 12 ounces of fish oil or linseed oil added as as sticker, is recommended. Fish oil has a strong odor which disappears a few hours after the spray mixture has been applied. Where the odor is considered objectional, linseed oil may be substituted for fish oil. In spraying with mixtures in which either of these oils is used, care should be taken to see that the spray does not reach the surfaces of buildings, because staining would result. The spraying must be thoroughly done, and in the case of tall trees it is necessary to use spray apparatus with sufficient power to carry the spray to the tops of the trees.

Spraying woodland areas from the ground is necessarily difficult and costly. Recent experiments have indicated that the application of concentrated wet spray mixtures from an autogiro is practical in such areas, although there is need for further development of apparatus and insecticides to be used for this purpose.

Mechanical Barriers:—Since female cankerworm moths cannot fly, the idea of banding tree trunks with material they cannot cross has long been suggested as a means of control. A sticky substance has been most commonly recommended for this purpose. Under certain conditions such bands are of value. Since small caterpillars have been observed to float through the air for 25 rods, and may be carried much greater distances, banded trees must be some distance from unbanded ones if satisfactory results are to be obtained. The bands must be applied before the moths start to emerge from the ground, and kept in proper working order throughout the period of emergence.

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